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ABSTRACT

During 1988-91, the School, College, and University Partnership (SCUP) program at Northern Arizona University (NAU) provided services to disadvantaged students in seven rural high schools on or near the Navajo and Hopi reservations. Many of these students came from low-income families, lived in geographically isolated locations, and attended schools with limited resources. SCUP helped students develop the academic skills needed for higher education and provided support for the school-college transition. Based on partnerships between NAU, the Navajo and Hopi tribes, and the Northern Arizona School Board Association, SCUP consisted of an academic-year program and a summer program. The academic-year program served approximately 9,635 students in grades 7-12 and contained the following components: (1) dropout prevention efforts, including study skills training for seventh- and eighth-graders, teacher training in study skills development and cultural awareness issues, community-based study halls, and a bilingual culturally relevant parent involvement program; (2) career and personal development through career fairs, visiting career mentors, and student seminars; and (3) installation of computer-assisted instructional laboratories, followed by teacher and student training. The summer program (Nizhoni Academy)--an intensive 5-week experience at NAU--provided 498 students in grades 9-11 with 160 hours of instruction in English, mathematics, and career development. Instruction emphasized metacognition, concentrated learning, cooperative learning, process approach, and critical thinking skills. In addition, structured extracurricular activities exposed participants to many facets of college life. (SV)

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BRIDGING THE GAP BETWEEN HIGH SCHOOL AND COLLEGE: A SUCCESSFUL PROGRAM THAT PROMOTES ACADEMIC SUCCESS FOR HOPI AND NAVAJO STUDENTS

Presented to:
RETENTION IN EDUCATION FOR TODAY'S AMERICAN INDIAN NATIONS
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The University of Arizona
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BRIDGING THE GAP BETWEEN HIGH SCHOOL AND COLLEGE: A SUCCESSFUL PROGRAM THAT PROMOTES ACADEMIC SUCCESS FOR HOPI AND NAVAJO STUDENTS

INTRODUCTION

The purpose of the School, College and University Partnership (SCUP) program at Northern Arizona University (NAU), the Center for Excellence in Education (CEE), Flagstaff, Arizona was to provide services to educationally disadvantage students attending rural high schools in grades 7-12 on or near the Navajo and Hopi reservations in northeastern Arizona, and New Mexico. The program was a cooperative agreement between Northern Arizona University, the Navajo and Hopi Tribes and the Northern Arizona Public School Board Association. The seven high schools participating in this program included three schools from Arizona, and four from the state of New Mexico. The services included: 1) a drop-out prevention program, a career and personal development program, and a computer literacy program, 2) training for twenty-five high school teachers in the areas of high school retention, teaching strategies, and cultural sensitivity issues in working with Native American students, and 3) the installation and operation of three computer-assisted instructional laboratories (CAIL). These academic services culminated into an intensive five week academic summer experience on campus of NAU called "Nizhoni Academy." The name "Nizhoni" is a Navajo word which is defined as "it, she or he is pretty; it is beautiful, clean, good, nice, fine, neat" (Young & Morgan, 1987, p. 665).

A NEED FOR A PARTNERSHIP

A recent report from the Carnegie Foundation's on colleges has indicated that "the first problem we encountered is the discontinuity between schools and higher education. Today, educators from separate levels with few exceptions carry on their

work in isolation....Students find the transition from school to college haphazard and confusing....Many young people who go to college lack basic skills in reading, writing, and computation." Institutions of higher education must accept the challenge and responsibility to assist talented secondary school students with disadvantaged backgrounds in order to assure their enrollment and success in postsecondary education institutions. The federal Department of Education's School, College and University Partnership (SCUP) program provided the opportunity for the development of such a program, bringing institutions of higher education and additional federal resources to render assistance to secondary schools who have limited resources, and with high percentages of educationally and economically disadvantaged students living in small rural communities.

One significant population of educationally disadvantaged students is the Native American student. The majority of Native American students in Arizona and New Mexico experience inferior elementary and secondary education, attending small schools with limited academic resources in remote locations on reservations. Students are also often separated from their families. In addition to limited educational opportunities, the economic condition of Native American families is severely impaired.

Among the states of the U.S., Arizona ranks 25th in total population, 3rd in Native American population, and 8th in Hispanic population. The state is sparsely populated and characterized by a relatively large number of small, rural school districts and a few large urban school districts. There are approximately 200 school districts in the state of Arizona. A majority of these schools have significant numbers of students who are disadvantaged due to low socio-economic level, lack of English language skills and migrant status.

The state is also characterized by rapid population growth, very young and very old sub populations, a changing ethnic demography, and great differences in

educational attainment correlated to ethnicity. Arizona's diversity, though responsible for the state's cultural richness, contributes significantly to the educators' dilemma in addressing all students educational needs. Considering some of the following characteristics of the population:

* Over 203,500 American Indians reside in the state of Arizona; the majority of whom, approximately 142,200 live on reservations (1990 Census of Population Characteristics, Arizona, 1992).
* There is a general misconception that American Indians share a mutual language and cultural historical background. In Arizona alone there are at least 21 distinct, recognized Indian languages.
* The 1986-87 public school enrollment indicated that 96,447 students spoke a language other than English. Of this, 73,170 students spoke Spanish. The majority of the remaining speak an American Indian language.
* Minority students make up approximately 33 percent of the total school enrollment in the state of Arizona. The two groups increasing most rapidly as a percentage of all youth are Native Americans and Hispanics, and they have the lowest rates of high school graduation, and highest drop-out rates of any other ethnic group.

Arizona Revised Statues require the State Board of Education to implement a nationally standardized, norm-referenced achievement testing program in reading, grammar and mathematics for pupils in grades 1-12. The national tests used were the Iowa Test of Basic Skills (ITBS), for pupils in grades 1-8, the Stanford Achievement Test (SAT-7) for pupils in grades 9, and the Stanford test of Academic Skills (TASK) for grades 10-12. As a whole, Arizona public school achievement test scores were at or slightly above the national average in 33 out of 36 testing categories.

Analysis of the data by race and ethnicity indicated that the Hispanic population generally outperformed the Black population in reading, language and mathematics across grades. The Native American student population obtained the lowest scores on reading, language and mathematics of all the racial/ethnic groups across all grades. Scores for this group were generally below, or well below the national averages. In addition to low academic achievement, the statistics indicated

that 18 percent of school age children in this group are not in school, 30 percent of high school students do not graduate from high school, and 70 percent of college students do not graduate within a four year period.

In the Navajo Nation for example, education (k-12) is the responsibility of four major educational systems: the public school system, Bureau or Indian Affairs schools, community-controlled contract schools, and mission (private) schools. During the 1987-88 school year, a total of 240 schools served approximately 64,179 Navajo Nation students.

Historically, Native Americans, Blacks, and Hispanics have been underrepresented in higher education in proportion to the population. Accounting for 33.4 percent of the population ages 5-17 in 1980, these groups combined comprised only 13.1 percent of college enrollments and 11.6 percent of graduate degrees in 1984-85.

As these disadvantaged populations move into the education system and work force, they have a greater opportunity and success in education. Unless the rate of success in education is improved, current trends point to lower levels of educational attainment for the state of Arizona and greater disadvantages for these individuals and for the state in an increasingly competitive economic environment.

Northern Arizona University/the Center for Excellence in Education has an established reputation for serving Native American students. The most recent data available from the National Center for Education statistics ranked NAU fourth among 2,624 four-year institutions in the number of Native Americans enrolled. A recent student needs assessment conducted at NAU in the fall of 1987 asked 155 Native American students the follow question: "What do you consider your present obstacle, if any, to completing your degree?" Sixty percent indicated completing and passing classes with good grades was a primary obstacle to obtaining a college degree. According to Astin (1982), one of the obstacles for Black, Hispanic

and Native American undergraduate students entering an institution of higher education is poor educational preparation. Falk and Aitken (1984) has indicated, as a result of their survey, that the lack of good academic preparation in high school by Native American students, received the highest ranking among the top obstacles to college completion. In the same study, seventy six percent reported that they were either somewhat prepared or not at all prepared academically for college level work. Sixty percent also cited poor academic preparation as a factor which hindered their retention in institutions of higher education. Minner (1995) and Wells (1989) indicated that inadequate and poor preparation were reasons for leaving school by Native American students. A closer look at general student academic failure rates during the freshman year at NAU reveal a pattern of failure in introductory math, science and English courses. The school sites who participated in this program demonstrated evidence of their lack of preparation for even their most capable students, since the junior and senior high schools have had such limited physical and instructional resources. Programs for the gifted have not been organized and advanced classes in English, science, and mathematics are nonesistent.

Those students who persist until graduation from high school and have been encouraged to consider post-secondary education find themselves to be academically unprepared. Unfortunately, many of them interpret this academic deficiency as their own lack of ability, and then drop out. Tijerina and Biemer (1988) indicated that:

> Indian high school students who are still interested in college are often underprepared. Many start with low self-esteem. Many must overcome the disadvantage of attending a small rural high school that does not offer the needed science courses .... few Indian high school students have suitable role models, and few are advised about professional career opportunities. (p. 90)

This is particularly true of Native Americans living in rural settings like the Navajo and Hopi reservations. Extreme distance between high schools, on the

Navajo Reservation necessitate boarding schools for these young people. Unfortunately, this form of isolation from home and community creates emotional hardships for Native American students. The resultant problems most often cited by staff at these boarding facilities are disruptive behavior, and lack of motivation and career goals.

The purpose of this program was to establish a year round program that fostered the needs of educationally disadvantaged students coming from low income families and rural communities. In addition, to acquaint the students and to provide a "bridge" and a smooth transition between high school and higher education. The program consisted of an academic year round program, and a summer academic program. The academic year component consisted of a drop-out prevention program, a career and personal development program, a computer assisted instructional laboratory program, and a teacher training component. The summer program called Nizhoni Academy (formerly Nizhoni Camp) is a college preparatory summer program which is a capstone of the academic year activities.

ACADEMIS YEAR COMPONENT

The academic year program was conducted on site at each of the seven participating high schools The program, served approximately 9,635 high school students from grades 7-12. There were 701 students in grade 7, 604 in grade 8, 2,651 in grade 9, 2,288 in grade 10, 1,928 in grade 11, and 1,553 in grade 12. Of this total, there were 8,780 Native American students, 73 African American students, 582 Hispanic students, and 200 White (other than Hispanic) students participated in this program.

In regard to gender, there were 4,712 male students, and 4,923 female students who participated in the three year period. The participants for this program lived on or near Indian reservations where poverty is considered to be very high, and the average yearly home income was estimated at approximately $8000 per family.

This project demonstrated that a cooperative effort between an Institution of Higher Education (IHE), Local Education Agency (LEA), and parents and local communities is of greatest significance because it allows the former to strive for the solution of many practical education problems that may otherwise be ignored. Partnerships were formed with the Navajo tribe, the Hopi tribe and the Northern Arizona School Board Association (NASBA) which demonstrated a working relationship and a commitment for excellence in education for educationally disadvantaged students.

Prior to this program, educational resources were very limited to those participating secondary schools. Computer labs were only established at one participating school, and the other six schools did not have computer labs. Although school counselors were employed by all schools, it was revealed that the number of counselors per student (1/500) was the norm, and was inadequate to effectively serve these students. Career exploration/fairs were very limited, and in some cases, did not exist. The drop-out prevention component was recognized by all schools as being a valuable component of the schools curriculum, however, the majority of the schools did not provide a drop-out prevention program because of the high cost to run such a program, or the lack of trained/certified school personnel.

Parental involvement activities in one of the schools had been implemented, however, the remaining schools did not have a parent involvement program. No one was given the responsibility of coordinating a parent program, but the schools did indicate that there was a great need for such a program within the school and community.

In meeting with the officials of the two tribes, the Navajo tribe indicated that their children (Navajo) had the highest drop-out rate among all ethnic groups, they lacked role models, they lacked the necessary programs needed to address these

educational issues, they lacked the skill development and knowledge in technology (computers), they had the lowest achievement scores in the nation, and had the lowest ACT/SAT scores of all ethnic groups (below national norms). In collaboration with the Navajo Department of Education, Window Rock, Arizona, the six participating secondary schools were identified by the Navajo tribe as being the most in need by this program. In addition, a meeting was also held with the Hopi Tribe, and expressed concern in regard to low test scores, lack of role models, lack of educational support and the need for such a program.

Objective 1. Dropout Prevention Program. The purpose of the drop-out prevention program was to promote the development of study skills for all participating students, to provide workshops/seminars for participating teachers and students, and to initiate a parental involvement program called "Parent And Student Success (PASS), for each of the seven target secondary schools.

The study skills component included test-taking skills development, note-taking skills, time management skills, library and research skills, goal setting skills, preparation for the American College Test/Scholastic Aptitude Test (ACT/SAT).

The implementation of the study skills component was conducted through the integration model by the teachers in teaching of their content areas at five of the schools. A study skills program was implemented in two of the schools which required that all seventh and eighth graders be enrolled in the class for one academic semester. One teacher was designated as the teacher for each school in which the "hm Study Skills Curriculum" was adopted from the National Association of Secondary School Principals (NASSP), and note books and study skills level I & II were provided for the students.

This program was conducted by the use of the "Trainer of Trainers" approach in which one of the program teachers received extensive training by attending a "hm Study Skills Seminar" sponsored by NASSP. Upon completion, the teacher

conducted hm Study Skills seminars for all of the participating teachers. The content of the Level I included the development of listening skills, reading for meaning, note taking skills, organization of time and notes, the use of dictionary, and test taking skills. Level II included learning how to become a good listener, vocabulary development, note taking skills, problem solving skills, developing good study habits, improving memory, and preparing for objective and essay exams.

To analyze the effectiveness of the students' overall performance in study skills, a dependent t-test, two-tailed was employed. A pre-test was administered before the start of the class, and upon completion of the course, a post-test was then administered. The test included 16 question items which was designed by NASSP for its use with the hm Study Skills curriculum. For all participants, moderately significant results were obtained, indicating that the study skills program was successful. The pre-test results indicated a mean score of (8.508), and the post-test scores indicated a mean score of (8.963). This Indicated an improvement in student performance by a difference of (.456). A comparison was made to determine the improvement between genders. The results indicated that both male and female students did slightly better on the study skills post-test, and that the male students had an improvement between the pre and post-test of (.514) as compared to the female students at (.389). A two-way interaction (gender*grade, gender*school, and school*grade) was examined to test if the treatment was significantly influenced by certain types of combinations of the three independent variables. The results indicated that statistical significance was found to exist for the interaction between gender and school ($f(1,128)=4.74, p<.05$). This indicated that both the male and female students who attended schools regardless of the grade they were in, scored high on the post-test. The final result of the study skills program based on the training of teachers, implementation of the curriculum, and the research data has

indicated that the study skills component was very beneficial to the students, staff, the community and parents.

The purpose of the Teacher Training component was to provide training in the areas of critical thinking skills development, cooperative learning technique, and cultural awareness/sensitivity in which teachers of American Indian students will be able to better serve the Native American (Hopi & Navajo) student. In collaboration with the Center for Critical Thinking and Moral Critique at Sonoma State University, California, this program adopted the model and utilized the handbook "Critical Thinking Handbook: High School" for the training of the teachers. At least one training session was conducted per year for all teachers that would help facilitate and integrate critical thinking skills into their classroom curriculum. In addition to the handbook, a series of video tapes were purchased for use as part of these training sessions. As a result, a curriculum handbook was prepared by the participating teachers that gave examples in how critical thinking skills can be implemented into a lesson plan addressing a specific content area.

In addition to the above, teacher training sessions also included workshops emphasizing cultural awareness issues regarding Native American students. Lorene Legah, a member of the Navajo tribe, and an educator provided the cultural awareness training sessions for the teachers participating in this program. The content of the workshops included an introduction to the Navajo Language, the Navajo kinship system, an overview of the social and cultural teaching of Dine (People), understanding of parents' and child's values, how to utilize the community resources, and provided information on Navajo cultural resource materials. The teachers at Hopi also received similar cultural training which was conducted by Mr. Ramson Lomatewama, a member of the Hopi tribe, an educator, and an expert on the Hopi culture. The content of the cultural seminars included similar topics to that of the Navajo culture, however, in the Hopi culture. The idea

of cultural awareness training was an excellent opportunity because it introduced the non-Indian teachers to the Navajo and Hopi cultures, and provided valuable information on how they can better teach, enhance their teaching, and have a better understanding of the Native American student. As a result, teacher and training manuals were developed and distributed to all teachers at each training session.

The study hall component was added into the third year of the program. The study hall program was implemented at six of the Hopi pueblo villages. It was determined that since all students ride the school bus to school, it would be to the advantage of the students that tutoring sessions be held in the villages in which these students reside. Each village received at least a minimum of 4 hours per week for a period of 32 weeks. The teachers participated as tutors, providing expertise in each of their content areas. Evaluation of the study hall component, was accomplished in two ways: 1) students who utilized the study hall were required to sign-in on a roster for each visit, and 2) based on this roster, teachers could determine who was utilizing the services. This information gave the teachers a clearer picture of students academic progress in the subject areas. In addition, teachers also recruited all of their students to attend a study hall for two consecutive weeks before the mid-term and two weeks before the final exams for each semester.

The drop-out prevention component called Parent and Student Success (PASS) program was designed to enhance retention by enlisting parents support and encouraging awareness of critical issues for the student such as motivation, communication skills, vocational opportunities, and more importantly, encouraged their children to stay in school. Annual parent sessions were available at each participating school site. The goals of the PASS program were: 1) to positively impact the parents of high school aged students of reservation public schools, to assist them to feel confident and effective with their students concerning their academic performance and success, 2) to facilitate communication between parents

and between community members, specifically regarding educational goals and school administration in their community, and 3) to encourage communication between students and their parents regarding academic performance (grades), homework, school-related attitudes discipline, and family issues.

The PASS program was implemented by each site coordinator who with the assistance of the school counselors, arranged parent workshops for each school during the academic year. Letters were sent home with students, and flyers were distributed throughout the local communities. The workshops were held early in the fall semester of each year. The program was conducted in conjunction with the Arizona Consortium on Education, utilizing the model called "The Arizona Parents' Academy." This model was adopted by this program and regarded as an excellent model, however, it was discovered that this model had to be adapted to fit the needs of parents in rural communities such as the reservations. This model is designed for urban parents whose children attend school in the city such as Phoenix, AZ.

A unique situation aroused when this model was implemented on the Navajo and Hopi reservations. English is a second language, and approximately 2/3's of the parents did not speak the English language. Because of this, this program consulted with a well known Navajo educator who is regarded in high esteem by the Navajo people on the Navajo reservation, and one that has vast experience in conducting parent seminars. She conducted seminars in the Navajo language, and produced handouts written in the Navajo language.

This program also adapted the Arizona model to fit the needs of the Native American parents culture. For example, in stressing the importance of education for their children, the 'Navajo Philosophy" was presented to the parents which gave them a foundation and a better understanding of how the American education system is similar with their culture/philosophy.

The evaluation of the PASS program was conducted by a questionnaire administered at the conclusion of each parent workshop. The questionnaire was divided into three sections. The first section addressed four questions using a rating scale of 1-5, 1=poor, and 5=excellent. The first part included the quality of information (mean score of 4.22=excellent), quality of speakers (mean score of 3.91=outstanding), organization (mean score of 4.38=excellent), and the location and facilities (mean score of 3.87=outstanding). The second part included suggestions that participants would like to make about the workshop which included the following examples: 1) "Role playing the part of the student because I could exhibit my own children's behaviors and have effective parent's behaviors modeled back to me," and 2) "Changing roles [from mother to daughter] gave me a chance to be in my child's shoes for a while." The third section included general comments to be made in regard to the overall performance of the workshops which included such comments as: 1) "I think we should have group meetings like this at area chapter houses on the [Navajo] reservation," and 2) "I suggest that this kind of program come out to our community high school [Hopi] to educate our parents in this type of training. This is very good and I'm sure parents will be interested."

Based on the evaluations received from parents, the concern for such a program from school administrators, staff, teachers and community member. As a result, the PASS program was considered to be a very successful and highly regarded as the most important component of this program.

Objective 2. Career and Personal Development.

This portion of the program addressed the nation-wide school problem of creating realistic awareness on the part of junior and senior high students of the requirements and steps necessary to achieve a variety of career and work environment goals, and to encourage their achievement in career choices. These issues were keenly felt on the Indian reservations, where students may not have an

realistic awareness of the means of attaining desirable work in the dominant society. The natural environment of the reservations is a rural, agricultural/farming community, with no "cities" and little employment potential beyond clerking stores and working with tourist-oriented businesses. A twofold economic need on the reservations today is to attract businesses and employment possibilities to the reservations, as well as preparing young adults for the work force, yet keeping them engaged with the tribal lifestyle of their families. This program addressed these issues with the following programming. For each consecutive year, career fairs were held on the campus of the participating high schools which provided all students with opportunity of exploring possible career choices after graduation from high school. In addition, NAU/CEE provided career options in collaboration with different professional departments such as education, nursing, and engineering, just to name a few. One particular school traveled to the campus of NAU to visit with university faculty and different departments. In addition, this program felt that it was important for these students to have the opportunity of visiting with former high school students who had graduated, and who also graduated from college as "Visiting Career Mentors." For example, Miss Navajo Nation conducted seminars that focused on the importance of receiving a good education, learning about ones' native culture and language, and the importance of staying away from drugs and alcohol substances.

Objective 3. Computer Assisted Instructional Laboratory (CAIL) Program.

The purpose of the CAIL program was to train the participating secondary teachers in computer hardware and software in order to assist them in delivering their subject matter more effectively. The objectives of this program were threefold: 1) to introduce basic computing skills to 7 through 12 grade students, 2) to enhance the reading and writing skills of all participating students, and 3) to institutionalize the CAIL program in each of the seven participating high schools.

The implementation of this program was conducted by training secondary teachers representing subject areas that included mathematics, English composition, drafting, science, and journalism classes. Each computer lab was designed to accommodate subject areas that included language arts, English composition, reading, writing, general math, algebra, geometry, science, chemistry, biology, journalism, and mechanical drafting. In addition, the labs were available to all teachers for lesson preparation, the computers were also made available to all students use either in the morning, noon time or after school. The computing labs were also instrumental in preparing students for the ACT and the SAT exams.

SUMMER PROGRAM- NIZHONI ACADEMY

The objectives of the Nizhoni Academy are: 1) to introduce and expose high school freshman, sophomores, and juniors to the rigorous coursework at the college level, and 2) to improve basic skills and motivation for learning in preparation for post-secondary education. Nizhoni Academy is an intensive five-week summer program designed for students in good academic standing, and where their high school curriculum has reflected a college-bound program of study. During the five week program, participants were provided with 160 hours of instruction in the foundation courses of composition, mathematics, and career development, with reading, study skills, and computer literacy incorporated into the classes. In addition, students received instruction in developing study skills including reading, memory improvement, test-taking, note-taking and time management necessary for college achievement. Students were also provided instruction in goal setting, self-esteem building, values clarification, career development activities, ACT preparation workshops, and cultural and recreational activities that reflect many facets of university/college life.

By providing a demanding curricula, the academy prepares students for continued academic success in high school, as well as instilling future expectations.

Through these efforts, the Academy has provided an experience for a smooth transition from high school to a post-secondary institution.

A key consideration by prospective applicants and their parents is the type of student support services and facilities that are available to the student. The students resided in dorms where they were supervised in small group by residential counselors. The participants had access to university services, and events, such as the library, natatorium, skydome, gymnasium, student union, computer labs, the Learning Assistance Center, and theaters.

The task of providing services is a reflection of the philosophical foundation of this program. The Nizhoni Academy, as part of the Educational Support Programs of NAU, operates within the same general philosophy that the entire department supports. The philosophy of Nizhoni Academy focused on five aspects of learning: metacognition, concentrated learning, cooperative learning, a process approach and critical thinking skills.

Metacognition was used to develop self-awareness of how the student learn and how they organize new material. Each student needs to understand his/her strengths and weaknesses; what methods make learning easy, which strategies work well and what limitations are present. Self-awareness allowed students to use their assets and to make changes that allow them to be a successful learner and contributor to society. Metacognition was examined in terms of learning study skills, and learning styles, as well as a useful approach in helping students make future plans. This idea was extended to other non-cognitive factors that contribute to educational success.

Concentrated learning (CL) advocates that once the material has been learned "in-depth" or when a high level of competency is obtained, educational research indicates that the material is remembered equally well by good and poor learners. It may require several exposures and continued study for poor learners to achieve the

same level of knowledge that good learners quickly gain, but once a complete understanding is achieved, all students will retain the material and be able to apply it. A variety of presentations techniques and academic exercises is used to obtain mastery of new material.

Cooperative learning utilizes a group structure in which students contribute collaboratively to academic tasks and assist fellow members in reaching academic objectives. The cultural process used for learning Native American traditions and religious beliefs indicates that Native American students learn in a time frame that allows individualized progress, fosters cooperation and incorporates frequent exposure. In-depth learning experiences are consistent with the cultural learning that students have experienced during their youth.

The process approach focuses the instruction on the different stages of particular cognitive tasks. It breaks a complex activity, such as writing, program-solving or decision-making, into pre-activities (motivation, preparation, assessment of tasks); during activities (writing a rough draft, solving a problem); and post-activities (follow-up, summarization, or evaluation with alternatives). This "before-during-after" approach is applied to all academic tasks (studying, writing, reading, problem-solving, critical thinking) or in examining life experiences and understanding institutional expectations.

Critical thinking skills development involved three primary elements: 1) the ability to recognize the central concern of an issue, question or problem and to look at that particular issue, question or problem from a variety of different perspectives, 2) the ability to apply different problem-solving strategies to a particular issue, question, or problem, and 3) a definite personal mental or psychological attitude that results in an individualist activity questioning what s/he reads, what s/he hears, and what goes on around him/her in the world. Development of critical thinking skills contributes to the student's greater understanding of academic material,

enhances their student survival strategies, and helps him/her to better integrate general life experiences.

Curriculum of the Nizhoni Academy

In order for students to meet the demanding needs of high school and higher education institutions, the following curriculum was established to help students accomplish these needs and to prepare them for the curriculum of higher education.

Objective one provided an early introduction to university academic life while providing a support system to guide and motivate participants through the demanding experience in their preparation for post-secondary education.

Foundation courses consisted of a total of 160 hours of instruction for 1.0 Carnegie unit of credit in courses of English, Mathematics and Career Development. The curriculum focused on in-depth concentrated study in selected skill areas, integration of computer work, study skills and reading into the curriculum on a daily basis, and student-centered classroom activities. All coursework was supported by an instructional lab, where students participated in small group sessions to work out individual difficulties and to reinforce learning goals.

Each student earned a final grade in each subject area. The composition course represented 42 percent of the grade, while mathematics and career development had a weight of 34 percent and 24 percent respectively. All the instructors were certified secondary English or mathematics teachers who had taught at either reservation schools or schools with a high minority student enrollment.

The emphasis on English compositions was designed to assist the student in mastering writing skills necessary for success at the freshman college level. This course utilized a thematic approach to instruction since the explicit goal is to develop student skills in writing a three point, five paragraph essay. Instructors used readings, films, music, discussion, as motivators for these essays. Students also

developed their reading, writing, and grammar usage skills. Students also maintained and wrote daily in journals. During the course of the five-week period, there was a total of 68 hours of classroom contact with the students which included 48 hours of classroom activity and 20 hours in the instructional lab.

The goal of the mathematics course was for students to learn and integrate problem solving skills. This was accomplished in two ways. First, students through exercises and creative activities, and second, classroom content covered numerous stylized word problems. Since the majority of the participants were second language English speakers, this course design forced them to deal with various language structures for presenting mathematical concepts and to write about mathematics, frequently utilizing personal journals.

The mathematics component consisted of three levels. The fundamental Math, Introductory Algebra and Advanced Algebra which was split to allow high-achieving students to explore pre-calculus and calculus concepts. The focus of each course was problem solving and reasoning skills necessary for mathematical thinking and understanding. The emphasis was on the analysis and application of strategies to solve a variety of situation/word problems. Study, reading, and writing skills related to math was also addressed. Emphasis was also placed on test taking skills since many mathematics students experienced test anxiety. A total of 36 hours of instruction was provided, in addition to 20 hours of instructional lab time.

The career development course consisted of guiding students through a decision-making process directed toward selecting a career area. Students learned the steps involved in making an important decision, including the gathering of information from a variety of sources and a comparing this data with personal skills and interests. The course began with values, decision-making and goal setting exercises, plus the students also completed a Vocational Interest Experience and Skills Assessment (VIESA) to identify career interest areas, and research

occupational information on the Guidance Information System. This allowed students to develop individual personal, educational and career goals. Time management was incorporated into the course material, as well as writing, computer assignments and the reading of various types of career/job listing books and research. To enhance the education and career goals, guest speakers from the public and private sector were invited to make presentations in the classrooms. In addition, a Career and College Fair was organized to provide the students an opportunity to speak with representatives from various colleges, and universities. The total classroom contact time for this course was 24 hours during the five-week period.

Curriculum for student must provide practical opportunities similar to their learning process. Abundant modeling and practice of academic study skills were utilized in real academic settings in order to demonstrate their effectiveness and foster their integration with the student's other skills. In applying this approach, study skills cannot be taught separately, and therefore are integrated into each subject content area. In a similar fashion, reading skills must be specific to each course, demonstrating skills pertinent to either objective or subjective courses. Writing skills are also an integral component of study skills.

Reading, study skills and computer literacy were incorporated into the daily activities of each course. A full array of skills were addressed and integrated into each course which included time management, test preparation/test taking, summarization, note taking, memory/learning and critical thinking were also addressed. This approach fits the Academe's philosophy of a holistic program where learning experiences are integrated, all through practice and actual application of new skills. The department's reading specialist also worked with individual students with extreme difficulties who were identified and referred by instructors.

A fully integrated curriculum, where each subject is seen as interacting with others, is one of the methods currently promoted in educational restructuring. Therefore, exploration of ways in which the areas of English, mathematics, and career development has to be intertwined and linked together into a holistic approach and activities has serious consideration in this program. For example, a theme such as "The Environment" can be explored in the English component by readings and writings of the environment as it pertains to our world. In the mathematical component, problem-solving skills in calculating and diagramming of global warming, stock and grazing per acre, irrigation systems, with creative problem solving skills to arrive at possible solutions, and in the career development component by exploring hydrologist, conservation officer, chemist, agricultural services, biologist are career possibilities to the environment.

Participants attended 20 hours of "seminars" which included a series of sessions on computer literacy, ACT preparation, time management, self-esteem, racism, urban survival skills and preparation for high school graduation. Prospective seniors spent most of their seminar time in ACT preparation workshops which exposed students to test taking strategies, test format and academic review. The preparation workshops included a sample test, techniques for stress management, review of information, and strategies for solving problems. The ACT preparation and testing was included in the Academy in order to encourage early application for college admission and to focus student attention on the college application process. For the sophomore and freshman students some worked with the P+ACT which served as an introduction to national standardized college admissions test-taking.

Instructional labs were coordinated with the instructors and assignments offered in the mathematics and English courses. Students were assigned to a group of 5 or 6 participants and worked both individually and in small groups to solidify

course material. In this way, personal attention was provided to assist each student academically for 38 hours. The lab consists of daily two hour long study sessions. Tutors, who have attended class with the students and knew the instructors' purpose and methodology, supported students; academic work by means of guided questioning, modeling and detailed feedback. Tutors were trained in how to incorporate study skills and learning strategies, into the tutoring to support the reading and study skills work being taught in class. Tutoring is conducted in group settings where the tutor can gain, through individualized and group work, continued exposure to the students' learning process and knowledge of the students' strengths and weaknesses. Such group work has built a peer support network for students.

Special arrangements were made to provide a skills assessment for each student. Initial academic readiness was evaluated by administering entrance exams and course pre-tests. Each participant took the regular college mathematics placement test. The test evaluated the level of competency in arithmetic, algebra and high levels of mathematics. A total of 40 questions ranging from arithmetic to trigonometry and calculus were on the placement exam. Weekly grades for all three classes are discussed with each student, as well as effort, attitude, and academic strengths. Students were offered the opportunity to provide regular feedback to the program through essays, comments to counselors, and structured evaluation sessions.

Objective two incorporated computer literacy workshops and course assignments utilizing computers designed to increase the participant's working knowledge of computers, including hardware and software functions, while teaching an understanding of the role computers play in modern society. This computer classroom housed 25 MacIntosh personal computers and five printers. Class sizes were 25 students with each section meeting one and one-half hour

during the first week of the Academy for an introductory computer workshop. In addition, extra hours were established over meal hours, in the evenings, and on Friday, Saturday, and Sunday afternoons for free use by the students to complete compositions and career development assignments. Computer hours are also scheduled when instructors can bring their classes into the lab.

Objective three provided a curricular model resulting from both research in cognitive retention and multicultural education, and NAU's previous experience in educating Native American secondary students. Thus, a theoretical base was mixed with staff knowledge and experience. This approach focused on selected, important academic skills, which are studied and practiced in a variety of ways until students obtain mastery of the identified skill. The approach also incorporated a holistic emphasis on the relationship between academic progress and non-cognitive attributes, such as self-esteem, values, goals, and support system.

Objective four structured extracurricular activities that promoted constructive interaction between peers, instructors, and other staff members. Some of these were connected to academic assignments. Such activities include cultural and recreational activities to introduce participants to all facets of college life, including those requiring the development of social skills. These activities offered new experiences for many participants.

Recruitment and Selection

The recruitment process involved: 1) dissemination of applications to all high schools and all tribal officials in Arizona, New Mexico, Utah, and California, 2) dissemination of news release of the Nizhoni Academy to local and state newspapers, 3) personal referrals from previous student participants and 4) personal contact by Academy director.

Nizhoni Academy received a total of 1,154 applications and transcripts, 1,608 inquires, and a total of 498 students were accepted into the Academy for the years

1989, 90 and 91. In addition, 17 freshman, 276 sophomores, and 205 juniors were recruited as part of this program (see table 1). The application process involved potential participants to submit the Nizhoni Application, high school transcripts indicating rank and class standing, a letter of recommendation from school officials, and a certificate of Indian Blood (only required for matching funds from the Navajo and Hopi tribes).

Only those applicants that submitted all required documents were considered for participation. Selection of participants were made on the basis of: 1) student application, 2) student essay on career goals and determination in continuing on in higher education, 3) academic standing/transcript and 4) letter of recommendation by school administration.

Notification of selection occurred at the end of May for each year of the program. Upon selection, the applicants were required to complete a registration packet indicating to the Academy of their acceptance to our summer program. Students were apprised of the high standards, student responsibilities and expectations set forth by the program. In addition, students were made aware of what they could expect out of the program, and the camp's responsibilities to the student.

Students were recruited from high schools from the four corner states of Arizona, Colorado, New Mexico, and Utah with a special emphasis placed on the seven target high schools involved in the partnership program. Distribution of the program brochure/poster was mailed to southwest high schools and the 19 tribes within Arizona. In addition, NAU recruiters/representatives distributed applications at career and college fairs held at various high schools.

TABLE 1

School, College & University Partnership (SCUP) Program
Summer Component - Nizhoni Academy
Demographic Information for the Summers of 1989, 1990, and 1991

	Summer 1989	Summer 1990	Summer 1991	TOTAL
# of Applications Received	184	457	513	1,254
# of Inquires Received	351	457	800	1,608
# of Students Selected	164	169	165	498
# of Actual Students who Enrolled	107	169	163	439
Gender:				
Female	71	116	105	292
Male	36	53	58	147
Grade Level:				
Freshman	0	5	14	19
Sophomore	94	93	87	274
Junior	70	71	64	205
Ethnicity:				
Navajo	92	103	104	299
Hopi	8	24	8	40
Pima	0	6	0	6
Tohono O'odham	0	5	2	7
Other	7	31	49	87
School Location:				
On Reservation	19	22	29	70
Off Reservation	8	12	13	33
Rural Community	10	11	27	48
Location of Schools by State:				
Arizona	23	29	29	81
New Mexico	12	13	13	38
TX,CA,Utah	2	3	3	8

SOURCE: Gilbert, W.S. (1991) *School, College and University Partnership (SCUP) program: To Provide Services to the Navajo and Hopi Tribes in the areas of Training and Computer Awareness.* Final Report of the Nizhoni Academy, Summer Program Component. NAU, CEE, Flagstaff, Arizona.

A large majority of the participants were of the Navajo Nation, with the Acoma, Ft. Mohave, Gila River Pima, Hualapai, Hopi, Jemez Pueblo, Jicarillo Apache, Kiowa, Laguna Pueblo, Maricopa, Paiute, Potawatomi, San Carlos Apache, San Felipe, Santa Domingo, Tohono O'odham, White Mountain Apache, Yavapai Apache, and Zuni Tribes were represented. A diversified number of tribal entities and ethnic groups have made the Nizhoni Academy an experience students will remember as a stepping stone to their future aspirations.

Results of the Nizhoni Academy

The program's impact can best be seen through an analysis of the student's performance in the Nizhoni foundation courses, composition (English and mathematics. In both classes, participants took pretests to determine their skills at the outset of the program. Post tests were given upon the conclusion of the program to determine improvement. The composition test used an essay format, scored on a scale of 0 to 4. Posttest were compared to the pretest results to determine improvement in this academic area. The mathematics testing featured 10 questions that ranged from the arithmetic level to algebra story problems.

Strengths of Nizhoni Academy

Program Strengths: Information on the program strengths were compiled after study of evaluations completed by Nizhoni Academy staff, instructors, tutors, counselors and students.

1) The computer lab was rated "excellent." Students enjoyed working with the Macintosh Computers. Lab aides for the lab were also rated "outstanding" for their assistance to students during lab hours.
2) The instructors were rated "outstanding." Students indicated the instructors took the time before and after class to assist the students with questions and/or problems.
3) The career fair/speakers forum was deemed successful. Plans are being made to invite larger eastern schools/universities to the events.
4) More time was given to allow sufficient computer time for students. Additional hours were added during lunch and dinner time and hours on Friday, Saturday and Sundays.

5) The tutoring component and facilities were rated "good." Students felt they received the individualized attention needed to assist them understand the homework assignments. Facilities were ideal with desks that were excellent for cooperative learning and small group work.
6) Students indicated that pre-assigned roommates was a good idea, as long as the roommate was on the same class standing. They felt this gave them some common ground to begin the relationship.
7) The Career Resource room was indicated as being helpful to students in searching out their career goals, strengths and weaknesses.
8) Intramurals was rated "excellent." This was very popular among the students. It was indicated that the Activity Center provided the best facility for physical activity, space, and the variety of equipment available.

Overall, the evaluations indicated that the Academy allowed the students the opportunity to meet new people, learn responsibility and contributed to the student's motivation to continue with some type of post-secondary education.

CONCLUSION

The program, over a three year period, made a major contribution to developing the necessary academic skills needed for both Hopi and Navajo students to either consider or to move on to acquiring a degree in higher education institutions. The program addressed the issues of the consequences of students dropping out of school, and how it effected their attitude towards school and in return, it allowed parents to become involved in their children's education. This program firmly believes that the root of students academic success in school is not solely based upon what the school can provide for the student, but instead, what parents of these children can provide for their children. Education for Hopi and Navajo children starts in the home/community, and parents are recognized by this program's philosophy as being the student's "first teacher."

Because of the remoteness of these secondary schools, and the lack of services provided by institutions of higher education, the initial objective was to assist these educational disadvantage students in providing them with an opportunity of

staying in school, providing them with career fairs which allowed students the opportunity to explore possible careers and to become contributing citizens of this society and their own communities. In addition, a critical component of any educational program is its teaching staff. By providing workshops/seminars for teachers of these children' allowed teachers to have a better understanding of their students cultural values, lifestyles, communities, and learning styles so that their own teaching strategies and the curriculum are conducive and relevant to their students learning.

Finally, by Bridging the gap between high school and college, this program has demonstrated its commitment to providing Native American (Hopi and Navajo) students with educational opportunities so that they do have this opportunity and to strive for excellence in what every they will accomplish in their professional careers.

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